

E58 Series

Diameter ϕ 58mm Shaft type/Hollow type/Built-in type Incremental Rotary encoder

■ Features

- Diameter ϕ 58mm flange type
- Suitable for measuring angle, position, revolution, speed, acceleration and distance
- Power supply : 5VDC, 12–24VDC $\pm$ 5%



Please read "Caution for your safety" in operation manual before using.



■ Ordering information

E58SC	10		8000		3		N		24			
Series Diameter ϕ 58mm	Shaft diameter			Pulse/ 1 Revolution	Output phase	Output	Power supply	Cable				
SC: Shaft Clamping	External	10	ϕ 10mm	Refer to resolution	2:A, B 3:A, B, Z (Standard) 4:A, $\overline{A}$, B, $\overline{B}$ 6:A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$	T:Totem pole output N:NPN open collector output V:Voltage output L:Line driver output (The power of Line driver is only for 5VDC.)	5:5VDC $\pm$ 5% 24:12–24VDC $\pm$ 5%	Blank:Normal type C:Cable outgoing connector type(250mm) CR:Axial connector integrated type CS:Radial connector integrated type				
SS: Shaft Synchro		6	ϕ 6mm									
H:Hollow	Inner	12 ϕ 12mm										
HB:Hollow Built-in												

*Standard: E58SC10–PULSE–3–N–24 *Customizable model specifications are available.

*Standard cable for shaft/built-in encoder is axial connector type cable.
Standard cable for hollow shaft encoder is radial connector type cable.

■ Specifications

Item		Diameter ϕ 58mm incremental rotary encoder		
Resolution (P/R)		(Note1) *1, *2, *5, 10, *12, 15, 20, 23, 25, 30, 35, 40, 45, 50, 60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000, 6000, 8000		
Electrical specification	Output phase		A, B, Z phase (Line driver output : A, $\bar{A}$, B, $\bar{B}$, Z, $\bar{Z}$ phase)	
	Phase difference of output		Phase difference between A and B phase : $\frac{T}{4} \pm \frac{T}{8}$ (T=1 cycle of A phase)	
	Control output	Totem pole output	• Low $\Rightarrow$ Load current : Max. 30mA, Residual voltage : Max. 0.4VDC • High $\Rightarrow$ Load current : Max. 10mA, Output voltage (Power voltage 5VDC) : Min. (Power voltage-2.0)VDC, Output voltage (Power voltage 12-24VDC) : Min. (Power voltage-3.0)VDC	
		NPN open collector output	Load current : Max. 30mA, Residual voltage : Max. 0.4VDC	
		Voltage output	Load current : Max. 10mA, Residual voltage : Max. 0.4VDC	
		Line driver output	• Low $\Rightarrow$ Load current : Max. 20mA, Residual voltage : Max. 0.5VDC • High $\Rightarrow$ Load current : Max. -20mA, Output voltage : Min. 2.5VDC	
	Res- ponse time (Rise/ Fall)	Totem pole output	Max. 1 μ s (Cable length:2m, I sink=20mA)	
		NPN open collector output		
		Voltage output	Max. 0.5 μ s (Cable length:2m, I sink=20mA)	
		Line driver output		
	Max. Response frequency		300kHz	
	Power supply		• 5VDC $\pm$ 5% (Ripple P-P : Max. 5%) • 2-24VDC $\pm$ 5% (Ripple P-P : Max. 5%)	
	Current consumption		Max. 80mA (disconnection of the load), Line driver output : Max. 50mA (disconnection of the load)	
	Insulation resistance		Min. 100M Ω (at 500VDC mega for all terminals and case)	
	Dielectric strength		750VAC 50/60Hz for 1 minute (all terminals and case)	
	Connection		Cable outgoing type, Cable outgoing connector type, Connector integrated type (axial, radial)	
Mechanical specification	Starting torque		• SC/SS type : Max. 40gf $\cdot$ cm (0.004N $\cdot$ m) • HB/H type : Max. 90gf $\cdot$ cm (0.009N $\cdot$ m)	
	Moment of inertia		• SC/SS type : Max. 15g $\cdot$ cm ² (1.5 $\times$ 10 ⁻⁶ kg $\cdot$ m ²) • HB/H type : Max. 20g $\cdot$ cm ² (2 $\times$ 10 ⁻⁶ kg $\cdot$ m ²)	
	Shaft loading		• SC/SS type $\Rightarrow$ Max. Radial : 10kg $\cdot$ f, Thrust : Max. 2.5kg $\cdot$ f • HB/H type $\Rightarrow$ Max. Radial : 2kg $\cdot$ f, Thrust : Max. 1kg $\cdot$ f	
	Max. allowable revolution		(Note2) 5000rpm	
Vibration		1.5mm amplitude at frequency of 10 to 55Hz (for one minute cycle) in each of X, Y, Z directions for 2 hours		
Shock		Max. 75G		
Ambient temperature		-10 to 70℃ (at non-freezing status), Storage : -25 to 85℃		
Ambient humidity		35 to 85%RH, Storage : 35 to 90%RH		
Protection		IP50 (IEC standard)		
Cable		ϕ 5mm, 5P, Length : 2m, Shield cable (Line driver output : ϕ 5mm, 8P)		
Accessory		ϕ 10mm (SC type) / ϕ 6mm (SS type) coupling, Fixing bracket		
Approval		CE (Except Line driver output)		
Unit weight		• SC-CS/CR type: Approx. 230g, SS-CS/CR type: Approx. 205g, HB-CS/CR type: Approx. 200g • SC type: Approx. 310g, SS type: Approx. 285g, HB type: Approx. 270g, H type: Approx. 270g		

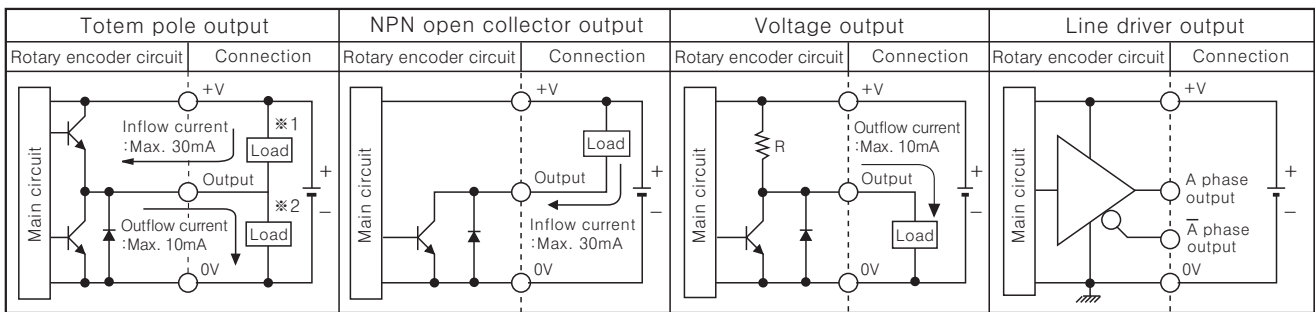
* **(Note1)** 1, 2, 5 12 P/R output A and B phase only. (But Line driver output : A, $\bar{A}$, B, $\bar{B}$ phase) [In case of hollow shaft type, 6000, 8000 P/R excluded]

* **(Note2)** Max. allowable revolution $\geq$ Max. response revolution **[Max. response revolution (rpm) = $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec.}$]**

Please select the resolution to make max. revolution lower than max. allowable revolution.

Incremental ϕ 58mm Shaft/Hollow Shaft/Built-in Type

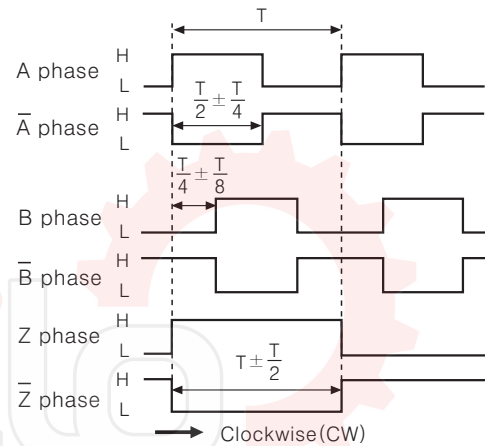
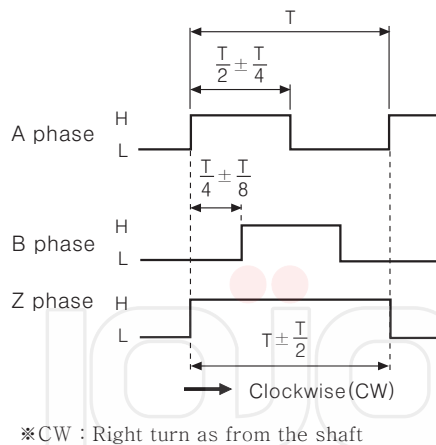
Control output diagram



- Totem pole output type can be used for NPN open collector output type(*1) or Voltage output type(*2).
- All output circuits of A, B, Z phase are the same. (Line driver output is A, $\bar{A}$, B, $\bar{B}$, Z, $\bar{Z}$)

Output waveform

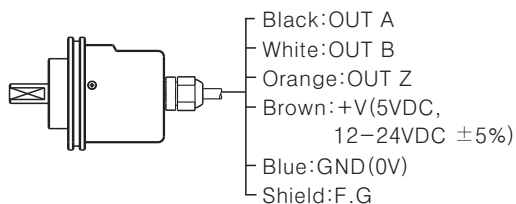
- Totem pole output / NPN open collector output / Voltage output
- Line driver output



Connections

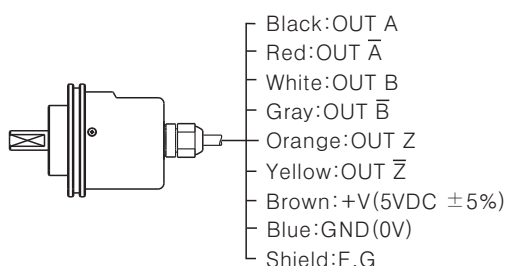
Normal type

- Totem pole output / NPN open collector output / Voltage output



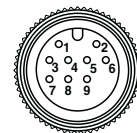
- ※ Unused wires must be insulated.
- ※ The metal and shield cable of encoder should be grounded(F.G)

- Line driver output



Cable outgoing connector/ Connector integrated type

- Totem pole output
- Line driver output
- NPN open collector output
- Voltage output



Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No	Function	Cable color	Pin No	Function	Cable color
①	OUT A	Black	①	OUT A	Black
②	OUT B	White	②	OUT $\bar{A}$	Red
③	OUT Z	Orange	③	+V	Brown
④	+V	Brown	④	GND	Blue
⑤	GND	Blue	⑤	OUT B	White
⑥	F.G	Shield	⑥	OUT $\bar{B}$	Gray
			⑦	OUT Z	Orange
			⑧	OUT $\bar{Z}$	Yellow
			⑨	F.G	Shield

※F.G(Field Ground) : It should be grounded separately.

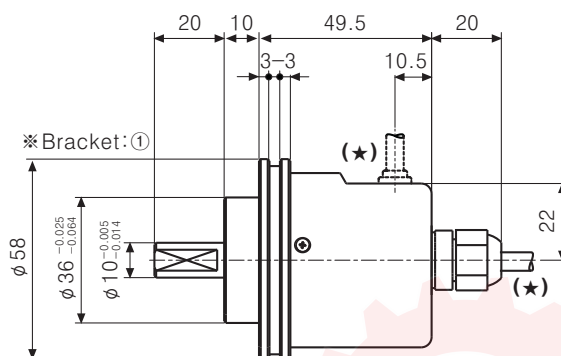
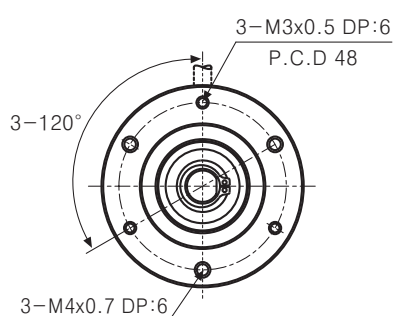
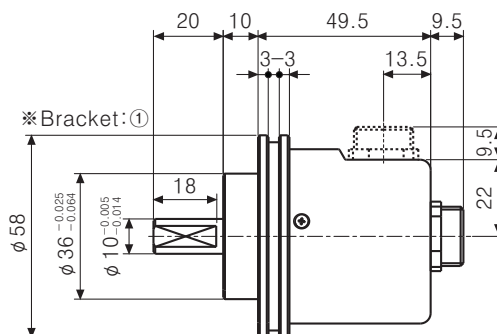
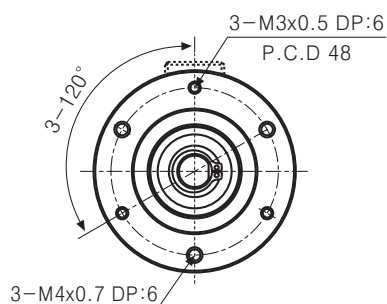
- (A) Photo electric sensor
- (B) Fiber optic sensor
- (C) Door/Area sensor
- (D) Proximity sensor
- (E) Pressure sensor
- (F) Rotary encoder
- (G) Connector/ Socket
- (H) Temp. controller
- (I) SSR/ Power controller
- (J) Counter
- (K) Timer
- (L) Panel meter
- (M) Tacho/ Speed/ Pulse meter
- (N) Display unit
- (O) Sensor controller
- (P) Switching power supply
- (Q) Stepping motor & Driver & Controller
- (R) Graphic/ Logic panel
- (S) Field network device
- (T) Production stoppage models & replacement

E58 Series

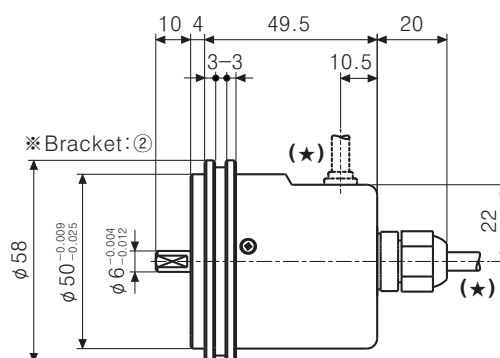
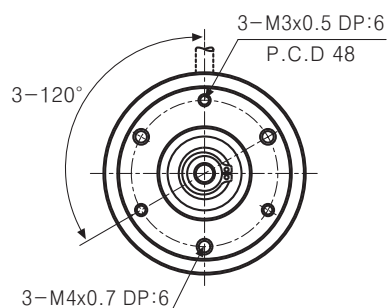
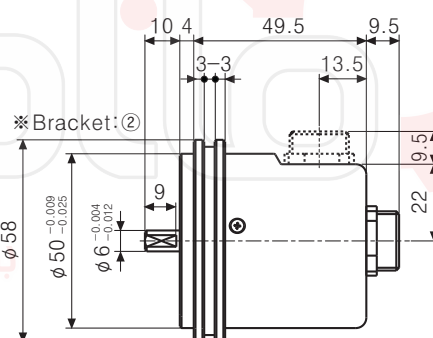
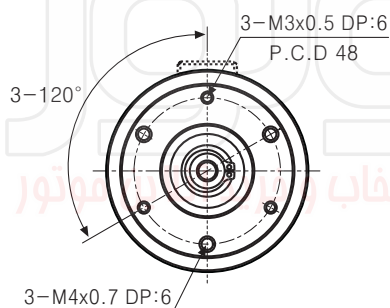
■ Dimensions

■ Shaft clamping type

(Unit:mm)

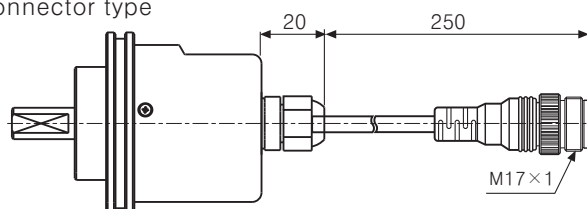


■ Shaft synchro type



※(★) Cable for normal type
ø 5mm, 5P(Line driver output:8P),
Length:2000, Shield cable

● Cable outgoing connector type

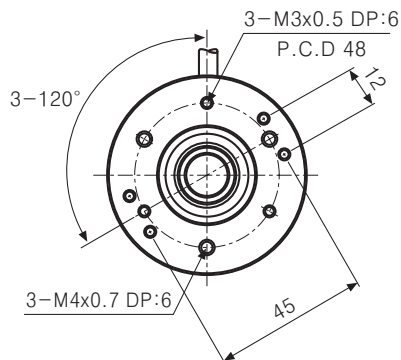


※Connector cable is customizable and see G-6 for specifications.

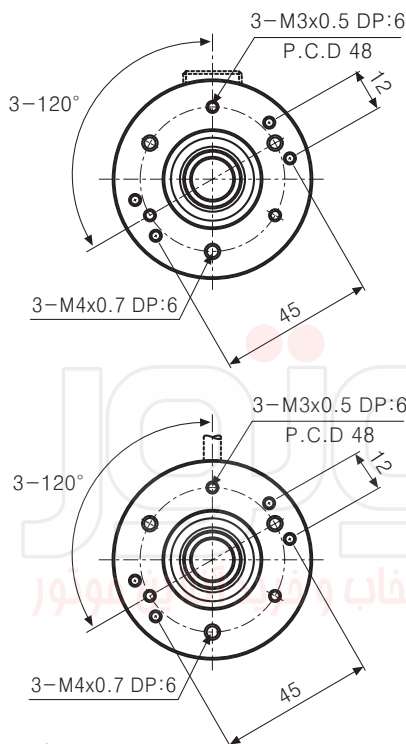
Incremental $\phi 58\text{mm}$ Shaft/Hollow Shaft/Built-in Type

■ Dimensions

■ Hollow type

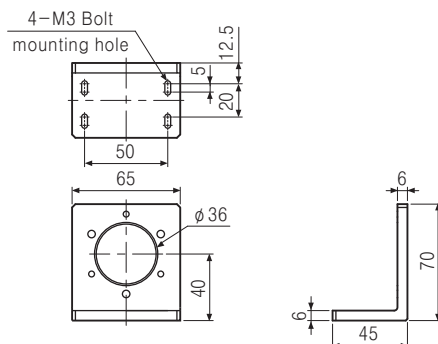


■ Hollow built-in type

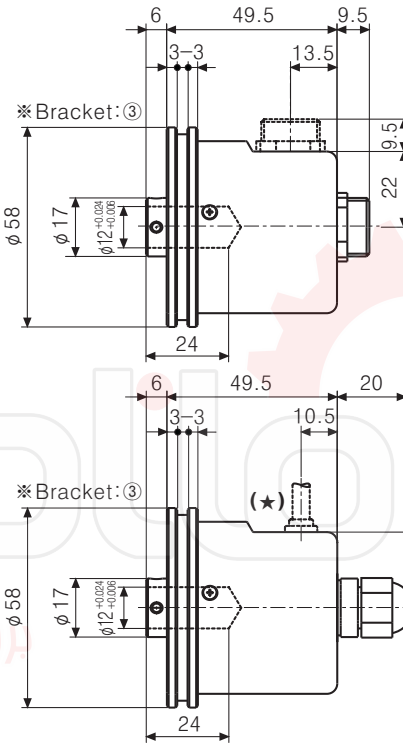
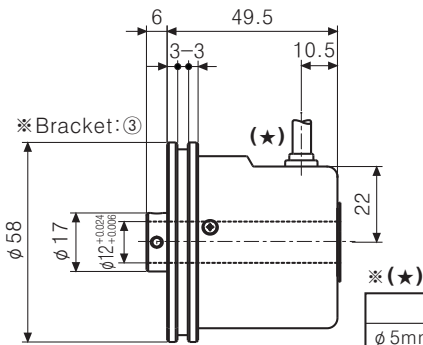
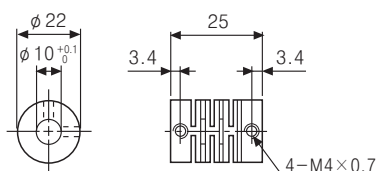


● Bracket

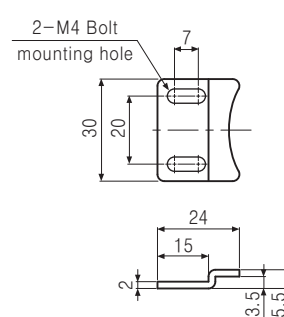
※SC type:①



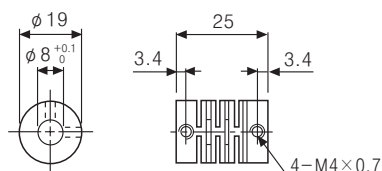
● $\phi 10$ Coupling (E58SC10 Series)



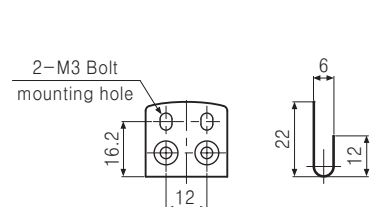
※SS type:②



● $\phi 8$ Coupling (E58SS6 Series)



※HB/H type:③



(Unit:mm)

(A)	Photo electric sensor
(B)	Fiber optic sensor
(C)	Door/Area sensor
(D)	Proximity sensor
(E)	Pressure sensor
(F)	Rotary encoder
(G)	Connector/Socket
(H)	Temp. controller
(I)	SSR/ Power controller
(J)	Counter
(K)	Timer
(L)	Panel meter
(M)	Tacho/ Speed/ Pulse meter
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